

Work Order ID 85443

June-08-12 10:06:34 AM

ASAP

85443

Page 1

Item ID: D2646

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Aft Cap

Start Date: 08/06/2012 Start Qty: 40.00

40

Cust Item ID:

Required Date: 22/06/2012 Req'd Qty: 40.00

40

Customer:

Reference:

Approvals: Process Plan: MLJ

Date: 12/06/08 Tooling:

Date:

Run Start *NR1*

QC:

Date:

SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D2646	Rev C								
100	PURCHASING	0.00							
100									
Purchasing	Memo	0.00							
Purchasing	Issue P/O: <u>17178</u> note required								
	I-Spin as per Dwg D2646 2-Material release								
110	Receive & Inspect for Damage & Mat'l Certs	0.00							
110									
Packaging	Memo	0.00							
Packaging	Ensure Material Release Note is attached								
120	QC6- Inspect dimensions to drawing	0.00							
120									
QC	Memo	0.00							
Quality Control									

CZ 12/06/11 40

12/14/20 (40)

40 12/06/21

85443

June-08-12 10:06:34 AM

N900040100

Setup Start *NS1*

Stop *NS2*

Start Date: 08/06/2012 **Start Qty:** 40.00

40

Cust Item ID:

Required Date: 22/06/2012 **Req'd Qty:** 40.00

40

Customer:

Reference:

Run Start *NR1*

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Stop *NR2*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

[illegible]

Work Order ID 85443

85443

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June-08-12 10:06:34 AM

Item ID: D2646

Accept

N900040100

Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Aft Cap

Start Date: 08/06/2012 Start Qty: 40.00

40

Cust Item ID:

Required Date: 22/06/2012 Req'd Qty: 40.00

40

Customer:

Reference:

Approvals: Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start ***NR1***

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160	White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum	0.00							
160									
Powdercoat									
Powder Coating									
	Memo	0.00							
	START TIME: <u>10:35</u> FINISH TIME: <u>11:05</u> OVEN TEMPERATURE: <u>11.05</u>								
170	QC3- Inspect Part Finish	0.00							
170									
QC									
Quality Control	Memo	0.00							
180	Small Fab	0.00							
180									
Small Fab									
Small Fab	Memo	0.00							
	Install inserts as per Dwg D2646								

Work Order ID 85443

June-08-12 10:06:34 AM

85443

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Item ID: D2646

Accept

N900040100

Setup Start *NS1*

Revision ID:

Item Name: Aft Cap

Stop *NS2*

Start Date: 08/06/2012 Start Qty: 40.00

40

Cust Item ID:

Required Date: 22/06/2012 Req'd Qty: 40.00

40

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start *NR1*

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190	QC5- Inspect part completeness to step on W/O	0.00				46			ML 12-06-22
190									
QC	Memo	0.00							
Quality Control									
200	Identify as per dwg & Stock Location: <u>FP-2</u>	0.00				40			ML 12-06-22
200									
Packaging	Memo	0.00							
Packaging									
210	QC21- Final Inspection - Work Order Release	0.00							
210									MLJ 12/06/22
QC	Memo	0.00							
Quality Control									

MLJ 12/06/22

Picklist Print

June-08-12 10:06:39 AM

Page 1

Work Order ID: 85443

85443

Parent Item: D2646

D2646

Parent Item Name: Aft Cap

Start Date: 08/06/2012

Required Date: 22/06/2012

Start Qty: 40.00

Required Qty: 40.00

Comments: IPP: G05.08.22Hole size revised in Step 5KJ/JLM
IPP Rev:H Changed Inserts 07-02-19 JLM
IPP rev I changed inserts 07.06.11 EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

ALS7-1032-130

Purchased

No

110

Each

2,136.000

2

80

AI S7-1032-130

Insert

Bl 12-6-02

Location

Loc Qty

Loc Code

ST280

51

117717

27

118966

22

119775

2

ST282

2085

119530

73

120181

12

121444

2000

80

D2646P

Purchased

No

180

Each

0.0000

1

40

D2646P

Aft Cap

Cn/s/2000

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>	AGAINST DEPARTMENT/PROCESS <table style="width: 100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Supplier <input type="checkbox"/>		Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Other <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Engineering <input type="checkbox"/>															
Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Quality <input type="checkbox"/>															
Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Supplier <input type="checkbox"/>																
Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Other <input type="checkbox"/>																

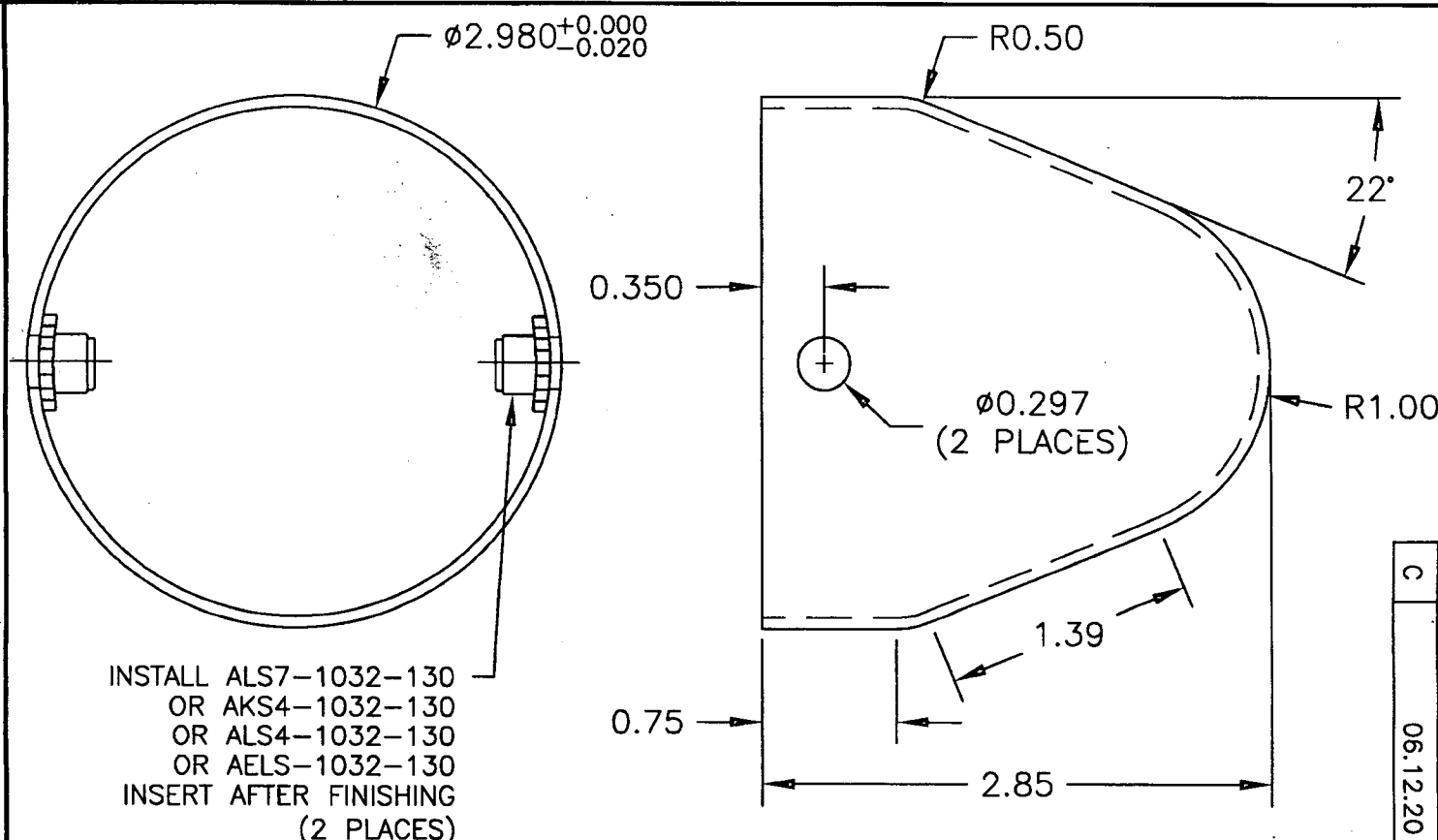
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data <input type="checkbox"/>									
Equip/Tooling <input type="checkbox"/>									
Operator <input type="checkbox"/>									
Material <input type="checkbox"/>									
Offset/Setup <input type="checkbox"/>									
Other <input type="checkbox"/>									
Process <input type="checkbox"/>									
Supplier <input type="checkbox"/>									
Training <input type="checkbox"/>									
Unauthorized <input type="checkbox"/>									

FAULT CATEGORY

Landing Gear <input type="checkbox"/> Bending Passes Below Min <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimp at Bending <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Other <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Ripples on Inner Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	Hardware <input type="checkbox"/> Breaking <input type="checkbox"/> Missing <input type="checkbox"/> Size/Length <input type="checkbox"/> Spinning <input type="checkbox"/> Threading <input type="checkbox"/> Wrong Drill Holes <input type="checkbox"/> Misaligned <input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Undersized <input type="checkbox"/> Too Many	General <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Documentation/Data <input type="checkbox"/> Finish <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Inspection Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Jigs/Fixtures/Tooling <input type="checkbox"/> Kit Incorrect <input type="checkbox"/> Kit Missing	<input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Off-Set <input type="checkbox"/> Orientation Misread <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Lost <input type="checkbox"/> Part Moved <input type="checkbox"/> Raw Material <input type="checkbox"/> Set-up <input type="checkbox"/> Supplier <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other
---	--	---	---



DESIGN	DS	DRAWN BY	PH	DART AEROSPACE USA, INC.	PORT HADLOCK, WA	REV. C
CHECKED	<i>[Signature]</i>	APPROVED	<i>[Signature]</i>	DRAWING NO.	D2646	SHEET 1 OF 1
DATE	06.12.20	TITLE	AFT CAP	SCALE	1:1	
A		97.03.25	NEW ISSUE			
B		05.04.01	CHANGE TO CLOSED INSERTS			
C		06.12.20	CHANGE TO OPEN ENDED INSERTS			



D2646 AFT CAP

- 1) MATERIAL: ALUMINUM 1100-0 0.063 THICK (QQ-A-250/1)
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT ASSEMBLY WHITE (4.3.5.1) PER DART QSI 005 4.3
- 3) ALL DIMENSIONS ARE IN INCHES
- 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER

NO. 85443 MLJ

12/06/08

DART
aerospaceDart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053**PURCHASE ORDER**Purchase Order ID **PO17178**

Purchase Order Date 6/11/12

PO Print Date 6/11/12

Page Number 1 of 1

Order From :SIEG'S MANUFACTURING LTD.
6236 - 205 STREET
LANGLEY, BC V2Y 1N7
CA

VC-SIE001

Contact NameVendor Phone 604 530 7455
Vendor Fax 604 530 7490

Vendor Account Nbr

Buyer

Chantal Lavoie

Requisition Nbr**Tax Resale Nbr**

10127-2607

Terms

Net 30

Currency

CAD

FOB

Destination-Collect

Ship To :

DART AEROSPACE LTD

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA**FAKED**
CL-1000

Line Nbr	Reference Revision ID Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	Req Qty/ Unit of Measure	Ship Method	Unit Price	Extended Price
1	D2646P	Aft Cap	6/22/12 Yes	40.00 Each	FedEx PI collect	\$6.7000	\$268.00

Special Inst: SPIN AS PER DWG D2646 REV. C
B85443**PO Total:****\$268.00****CERTIFICATE OF CONFORMITY
REQ'D UPON DELIVERY****MATERIAL CERTIFICATION
REQ'D UPON DELIVERY**

nge Nbr: 1

Change Date: 6/11/12

No substitution or deviation without
consent.Certificate of Conformity or Material
Certification required **YES** NO



Sieg's Manufacturing Ltd.

6236 205 Street Langley, B.C. Canada V2Y 1N7

Ph#: (604)530-7455 fax#: (604)530-7490

arla@siegsimg.com

INSPECTION REPORT

Date: June 19, 2012

Customer: Dart Areospace

Packing Slip: 40900

Part#:	Quantity	Material	Check holes	Insp. By.
2646	40	1100-0 0.064"	N/a	AK

Notes:

Material Certification Attached: Yes

ThyssenKrupp Materials NA

Ken-Mac Metals Division



ThyssenKrupp

10/14/11

CERTIFIED CHEMICAL & MECHANICAL ANALYSIS

Ship To: Copper & Brass Sales
P.O. Box 5116

Ship To: Copper & Brass Sales
404 Centura Court

Southfield

MI 48086-5116

Spartanburg

SC 29303

Customer PO Number: 5400111624-R01

Part No:

Ken-Mac Order/Item: 462255-1

Item Description : MA .06300 48.000 144.000 1100 0 MFREG MFREG

Lot/Lot: 28149601A Mill Tag No : 427978

Stock No: 167291 Case Tickets: 752416, 752417, 752418

Chemical Composition

(Si)	(Cu)	(Fe)	(Zn)	(Al)
1100	.1300	.6000	.0100	99.15

Mechanical Composition

tensile PSI: 13,500 Yield PSI: 5,900 Elongation: 30.0 Hardness as Shipped:

Lot/Lot: 28149601A Mill Tag No : 427979

Stock No: 167292 Case Tickets: 752418, 752419, 752420

Chemical Composition

(Si)	(Cu)	(Fe)	(Zn)	(Al)
1100	.1300	.6000	.0100	99.15

Mechanical Composition

tensile PSI: 13,500 Yield PSI: 5,900 Elongation: 30.0 Hardness as Shipped:

Net Pounds: 16,498

A Page 1


Bob Harley - Corporate Quality Manager



Skana Aluminum Co
Rolling Mill - Certified Metal

Certification of Properties and Analysis

Physical test: 112843 Aluminum Alloy: 1100 Temper: -O- Thickness: .0630

Tested For: Copper and Brass Sales

6156 PO No: 5400107660-R01

Chemical	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Others	Al
Min Range	..	..	0.05	..	..	..	..	..	..	..	..
Max Range	.95 Si	+ Fe	0.20	0.05	..	..	..	0.1	..	0.05	..

Coil Ref. No.	1	2	3								
Tensile Strength KSI	13.03	13.12	12.81								
Yield Strength KSI	5.37	5.28	5.17								
% Elong. in 2 in.	31.70	31.70	31.60								

Coil Ref. No.											
Tensile Strength KSI											
Yield Strength KSI											
% Elong. in 2 in.											

Coil Ref. No.											
Tensile Strength KSI											
Yield Strength KSI											
% Elong. in 2 in.											

Coil Ref. No.											
Tensile Strength KSI											
Yield Strength KSI											
% Elong. in 2 in.											

Coil Ref. No.											
Tensile Strength KSI											
Yield Strength KSI											
% Elong. in 2 in.											

Remarks

Tested By: NH

Certified Date: 22 Sep 2011

NH .063 X 48,000 MF 3/3

ITEM# ALFLR01226

MEETS/EXCEEDS ASTM B209-10 SPECS

Skana Aluminum Company

Rolling Mill - Certified Metal

Certification of Properties and Analysis

Physical test: 112843 Aluminum Alloy: 1100 Temper: -O- Thickness: .0630

Tested For: Copper and Brass Sales

6156 PO No: 5400107660-

Chemical	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Others	Al
Min Range	..		0.05	..	..	..	..	..	..
Max Range	.95 Si	+ Fe	0.20	0.05	..	..	..	0.1	..	0.05	

1	13.03	5.37	31.70	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Others
				.183	.484	.087	..	..	..	..	..	..	..

Al

BAL

2	13.12	5.28	31.70	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Others
				.185	.048	.089	..	..	..	..	..	..	..

Al

BAL

3	12.81	5.17	31.60	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Others
				.182	.439	.082	..	..	..	..	..	..	..

Al

BAL

Remarks

Tested By: NH

Certified Date: 22 Sep 2011

NH .063 X 48,000 MF 3/3

ITEM# ALFLR01226

MEETS/EXCEEDS ASTM B209-10 SPECS

Thursday, September 22, 2011

MADE IN THE U.S.A.

QF 824-1-2

Page 1 of 2

ThyssenKrupp Materials NA

Ken-Mac Metals Division



10/14/11

ThyssenKrupp

CERTIFIED CHEMICAL & MECHANICAL ANALYSIS

Old To: Copper & Brass Sales
P.O. Box 5116

Ship To: Copper & Brass Sales
404 Centura Court

Southfield MI 48086-5116

Spartanburg SC 29303

Customer PO Number: 5400111624-R01

Part No:

Ken-Mac Order/Item: 462255-1

Item Description : MA .06300 48.000 144.000 1100 0 MFREG MFREG

Heat/Lot: 28149601A Mill Tag No : 427978

M Stock No: 167291 Case Tickets: 752416, 752417, 752418

Chemical Composition

(Si)	(Cu)	(Fe)	(Zn)	(Al)
.1100	.1300	.6000	.0100	99.15

Mechanical Composition

Tensile PSI: 13,500 Yield PSI: 5,900 Elongation: 30.0 Hardness as Shipped:

Heat/Lot: 28149601A Mill Tag No : 427979

M Stock No: 167292 Case Tickets: 752418, 752419, 752420

Chemical Composition

(Si)	(Cu)	(Fe)	(Zn)	(Al)
.1100	.1300	.6000	.0100	99.15

Mechanical Composition

Tensile PSI: 13,500 Yield PSI: 5,900 Elongation: 30.0 Hardness as Shipped:

Total Pounds: 16,498

A Page 1

Bob Harley

Bob Harley - Corporate Quality Manager

-A-B
ACCREDITED
L2068-1

ALERIS ROLLED PRODUCTS, LLC
C/O ALERIS ROLLED PRODUCTS, INC.
P O BOX 480
LEWISPORT, KENTUCKY 42351

ALUMINUM CERTIFICATION SHEET

THIS IS TO ADVISE THAT THE MATERIAL PRODUCED FOR YOUR ORDER
CONFORMS TO THE SPECIFICATIONS OUTLINED BY THE ALUMINUM ASSOCIATION.
MATERIAL WAS MELTED, ROLLED, AND PROCESSED IN THE USA.
THE TEST RESULTS RELATE ONLY TO THE SKID IDENTIFIED BELOW:

SKID : 427978 CUSTOMER: THYSSENKRUPP MATERIALS, NA
ORDER: 00337316-000001 17901 ENGLEWOOD DRIVE
CLEVELAND OH44130
LOT : 281496
SUBLOT : 28149601A PO # : 124138
PART # :
DESCRIPTION: ALLOY 1100
TEMPER O
SIZE .0630 X 48.0000

SPECS: ASTM B209

DATE TESTED: 09/13/2011 CHEMICAL COMPOSITION - ASTM E1251

SI	FE	CU	MN	MG	CR	ZN	TI	GA	V	AL
.11	.60	.13	.00	.00	.00	.01	.00	.00	.00	99.16

DATE TESTED: 10/02/2011 MECHANICAL PROPERTIES - ASTM B557

	RESULTS	T42 RESULTS	T62 RESULTS
ULTIMATE TENSILE STRENGTH MIN (KSI)	13.5		
ULTIMATE TENSILE STRENGTH MAX	13.6		
ULTIMATE TENSILE STRENGTH AVG	13.6		
YIELD STRENGTH MIN (KSI)	5.9		
YIELD STRENGTH MAX	6.4		
YIELD STRENGTH AVG	6.2		
ELONGATION MIN %	30		
ELONGATION MAX %	30		
ELONGATION AVG %	30		

NET SKID WEIGHT: 8,422

CHEMICALS CERTIFIED: /S/ SUSAN MUDD, QUALITY SYSTEMS SUPERINTENDENT
MECHANICALS CERTIFIED: /S/ SUSAN MUDD, QUALITY SYSTEMS SUPERINTENDENT